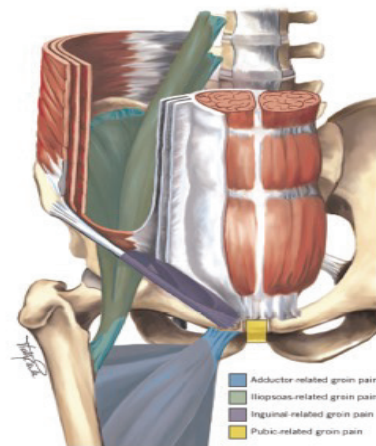


Introduction

Athletic groin pain can be particularly frustrating for athletes because it can significantly impact their performance, plus the underlying causes can be difficult to diagnose and treat. Different athletes may experience different symptoms. Some athletes may experience a sharp pain in the groin area during activities that involve cutting or twisting movements, while others may experience a dull ache that persists even during periods of rest. It is important to understand that athletic groin pain can have a variety of causes.

They can be classified into five categories:

1. Adductor Related Groin Pain
2. Iliopsoas Related Groin Pain
3. Inguinal Related Groin Pain
4. Pubic Related Groin Pain
5. Hip Related Groin Pain or Other Causes



1. The most common cause of athletic groin pain is related to the adductor muscles. This type of pain is often associated with activities that involve repetitive kicking, sprinting or rapid changes of direction, such as soccer or ice hockey. It can be assessed by testing if resisted hip adduction provokes pain and palpating the adductors for tenderness.

2. Iliopsoas-related groin pain involves the hip flexors and can be assessed by testing if resisted hip flexion and stretching the hip flexors provoke pain. You can attempt to palpate the iliopsoas for tenderness; however, research has found this to be unreliable.

3. Inguinal pain is often caused by repetitive lifting, twisting, or turning movements and can result in pain in the lower abdomen or pubic area. This can be assessed by palpating for pain in the inguinal canal region (if hernia bulge is present, refer to medical Dr. for further evaluation). Pain provocation may occur with an abdominal contraction or when coughing or sneezing.

4. Pubic-related injuries can be associated with regional trauma or impact to the pelvis. They can also occur with high velocity movements. These can be assessed by palpating for pain at the pubic symphysis and the pubic bone.

5. Hip-related groin pain can be caused by hip impingement, osteoarthritis, joint inflammation, and labral tears.

Some other potential causes of adductor pain that need to be considered include referral from the spine, peripheral nerve entrapment, avulsion, or stress fracture plus systemic medical conditions.

If you suffer from Athletic Groin Pain, it's important to seek out the advice of a qualified sports physiotherapist or sports medicine professional. A thorough assessment, including a detailed history, physical exam, and possibly imaging tests, can help identify the underlying cause of the pain and guide treatment decisions. In most cases, a comprehensive rehabilitation program that includes targeted exercises, manual therapy, and activity modification can help athletes recover from groin pain and return to their sport or activity goals. This condition rarely need surgery.

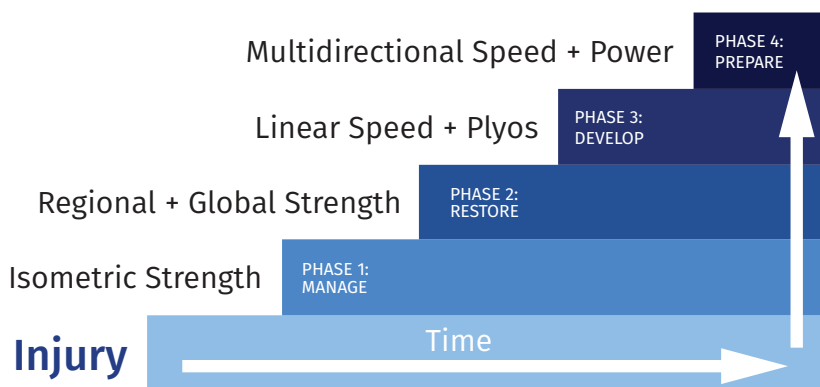
Treatment - Load Management Strategies

Athletic groin pain is an overuse injury. Evidence suggests that conditions such as athletic groin pain respond positively to activity modification and progressive exercise.

Education + Activity Modification - Education with a comprehensive plan is paramount for success. Load management and activity modification allow the tissues to recovery a progressive return to your activities. Activity modification can reduce strain on the tissues to support recovery. Targeted exercise can build up the capacity to handle more stress without aggravating the injury. Increasing stress tolerance over progressively more demanding training enables the tissues to become more robust and resilient for a successful return to sport.

Progressive Exercise - While modifying training load is a key component of early recovery, initiating a progressive loading program is important to reduce pain and improve the tissues capacity. The below diagram shows a graded progression that increasing stress on the recovering tissue. There can be a variety of exercises in each category that can be built up, then integrated through the process. Individual readiness to progress to the next level will differ depending on history and extent of injury.

Gradual Return to Sport or Activity



Sustained isometric exercises are one possible starting point. They are usually well tolerated and have been shown to have an analgesic effect, meaning you can experience less pain after doing the exercises. These early-stage exercises should be completed with minimal pain (<3/10) on a Pain Rating Scale (NPRS). However, to create adaptations and improve the capacity of the tissues, heavier loads are required. To achieve muscle strength, the patient must work at an adequate intensity, while minimizing exacerbation of pain. It is safest to start slowly with a moderate level of effort and progress as tolerated over time. As the intensity builds, exercise should only be performed every second day, allowing adequate time for recovery and adaptation. Refer to the appendix for an example for a detailed week to week plan.

ATHLETIC GROIN PAIN REHABILITATION PROTOCOL

	Phase 1: MANAGE <i>Pain + Mobility</i>	Phase 2: RESTORE <i>Functional Capacity</i>	Phase 3: DEVELOP <i>A robust athlete</i>	Phase 4: PREPARE <i>For the demands of the sport</i>
	Day 1 - 4 weeks	Week 2 – 8	Week 6 – 12	Week 10 – 16
Phase Objectives + Pre-Test Goals	<ol style="list-style-type: none"> 1. Education: activity modification + rehabilitation plan 2. Decrease groin pain - Introduce isometrics 3. Improve tissue mobility and functional range of motion 4. Initiate local hip muscle recruitment 5. Initiate core and pelvic control 6. Bilateral squat within <3/10. +/- load as tolerated 7. Cardiovascular fitness (off-feet - bike) 	<ol style="list-style-type: none"> 1. Maintain improved pain-free ROM, while increasing functional capacity 2. Progress local hip strength 3. Progress core and lumbopelvic pelvic control 4. Train basic movement patterns within tolerance (squat, hip hinge, split squat) 5. Introduce linear plyometrics and run preparation (bilateral jumps, marching, pogo hops, skipping, step ups) 	<ol style="list-style-type: none"> 1. Optimize control in multiplanar patterns 2. Progress single leg dynamic control 3. Progress global strength in basic movement patterns 4. Plyometric progressions 5. Initiate linear speed, deceleration + COD mechanics 6. Progress cardiovascular fitness (on-feet – run/skate/sprints) 	<ol style="list-style-type: none"> 1. Introduce sport specific drills 2. Speed and power development 3. Advanced plyometric progression 4. Progress multidirectional training (cutting – planned) 5. Initiate reaction-based training (agility drills – unplanned) 6. Build reactive strength 7. Sport specific fitness (energy system development) 8. Graded sport or team integration
Precautions	<p>Keep pain < 3/10 during functional activities</p> <p>Pain < 5/10 during 5 second squeeze test (5SST)</p>	<p>Keep pain < 3/10 during functional activities</p> <p>Pain < 3/10 during 5SST</p>		
Clinical Tests + Milestones	<ol style="list-style-type: none"> 1) Screening tests FABER / FADIR 2) Hip Strength (HHD) Limb symmetry index (LSI) Goal >75% with hip abduction, adduction, ADD:ABD ratio 1.2 3) Copenhagen 5 second adductor squeeze test <5/10 pain 	<ol style="list-style-type: none"> 1) Screening tests FABER / FADIR 2) Hip Strength (HHD) Limb symmetry index (LSI) Goal >85% with hip abduction, adduction, ADD:ABD ratio 1.2 3) Copenhagen 5 second adductor squeeze test <3/10 pain 	<ol style="list-style-type: none"> 1) Hip Strength (HHD) Limb symmetry index (LSI) Goal >90% with hip abduction, adduction, ADD:ABD ratio 1.2 2) Copenhagen 5 second adductor squeeze test <3/10 pain 	<ol style="list-style-type: none"> 1) Hip Strength (HHD) Limb symmetry index (LSI) Goal >90% with hip abduction, adduction, ADD:ABD ratio 1.2 2) Copenhagen 5 second adductor squeeze test <3/10 pain
FUNCTIONAL TESTS + MILESTONES	<ol style="list-style-type: none"> 1) Hip and Trunk Capacity <ul style="list-style-type: none"> • Single leg bridge, 20x • Copenhagen hold (short), 30 sec • Side plank, 30 sec hold • Front plank, 60 sec *Assess position, control, capacity 2) Functional Capacity Double leg body weight squat to 90° knee flexion with neutral pelvis x 20 	<ol style="list-style-type: none"> 1) Hip and Trunk Capacity <ul style="list-style-type: none"> • Single leg bridge, 30x • Copenhagen hold (long), 30 sec • Side plank hip abduction, 30 sec • Front Plank, 90 sec *Assess position, control, capacity 2) Functional Capacity <ul style="list-style-type: none"> • Single leg step up (Tempo 1:0:1) X 30 • Single leg squat: 70 degrees knee flexion, X 20 (Tempo 2:0:2) • Max bilateral squat: 3RM to 90° knee flexion. > than 70% BW 3) Hop Test Single leg drop landing with good mechanics 4) Fitness Elliptical/Jogging – build distance and fitness- slow speed 	<ol style="list-style-type: none"> 1) Hip and Trunk Capacity <ul style="list-style-type: none"> • Single leg bridge, 30x • Copenhagen reps (long), 10x • Side plank hip abduction, 10x • Front Plank, 120 sec *Assess position, control, capacity 2) Functional Capacity <ul style="list-style-type: none"> • Single leg step up (Tempo 1:0:1) X30 • Single leg squat: 70 degrees knee flexion, X 30 (Tempo 2:0:2) • Max bilateral squat: 3RM to 90° knee flexion. > than 90% BW 3) Hop Test <ul style="list-style-type: none"> • Single leg hop for distance, 85% LSI • Lateral bounding for 90 sec 4) Fitness Increased tempo runs- 20-50m with graduated increase in intensity 	<ol style="list-style-type: none"> 1) Hip and Trunk Capacity <ul style="list-style-type: none"> • Single leg bridge, 30x • Copenhagen reps (long), 15x • Side plank hip abduction, 15x • Front Plank, 120 sec *Assess position, control, capacity 2) Functional Capacity <ul style="list-style-type: none"> • Max 3 RM split stance > 50% BW or RFESS 10@> 35% BW 3) Hop Tests <ul style="list-style-type: none"> • Triple leg hop for distance, 85% LSI • Pivot bounding for 90 sec 4) Agility Tests <ul style="list-style-type: none"> • T- Test • Edgren Sidestep Test (ESST) 5) FitRepeated sprints Sport specific to demands of sport
PROM	HAGOS	HAGOS	HAGOS	HAGOS

EXERCISE PROGRAM - EXAMPLE

This is an example of a progressive exercise program. It should be adapted for individual readiness and sport specific requirements.

Phase 1 MANAGE

Focus: Mobility + Isometric Strength

Period: Weeks 1-4 (depending on extent of acute damage)

Exercise Frequency: Daily

MOBILITY + ISOMETRIC STRENGTH	EXERCISE	REPS/SETS
Warm Up	Stationary Bike	10 mins
Release	Trigger ball Front / Inside / Back pocket	1 min each
Mobility	Hip Mobility Series – specific mobility or yoga flow	5 min
A1	Single Leg Bridge – Hold or March	3 x 8 each side (es)
A2	Dead Bug – Active reach with isometric hold	3 x 8 es
B1	Half Plank - Side Hold	3 x 30s
B2	Ball Isometric Adductor Squeeze – short + long lever	3 x 30s es
C1	Palloff Press (squat hold with cable press)	3 x 5 es in each direction
C2	Supine medicine ball dissociation	3 x 10
D1	Lunge Hold - with medicine ball rotations	3 x 8 es
D2	Plank	3 x 30s

EXERCISE PROGRAM - EXAMPLE

This is an example of a progressive exercise program. It should be adapted for individual readiness and sport specific requirements.

Phase 2 RESTORE

Focus: Regional + Global Strength

Period: Weeks 2-6

Exercise Frequency: 6 sessions per week (3 Manage/ 3 Restore)

REGIONAL + GLOBAL STRENGTH	EXERCISE	REPS/SETS
Warm Up	Cycling with standing intervals 30 sec up 1 min recovery	8 reps x 30 sec:1min
Release	Trigger ball Front / Inside / Back pocket	1 min each
Mobility	Hip Mobility Series – specific mobility or yoga flow	5 min
A1	A March	2 x 10m
A2	Acceleration Wall Angle – isometric hold 5 sec – slow exchange	2 x 6 es
A3	Side Steps - banded	2 x 10 es
A4	45 Degree Angled Skater on Slide Disc	2 x 10 es
A5	Alternate Lunge Step Backs	2 x 10 es
B1	Front Squat Bar Bell (BB) or Goblet to 90 deg knee	3 x 8
B2	Single Leg Romanian Deadlift (RDL)	3 x 6 es
B3	Side Steps – Banded (inside)	3 x 6
C1	Split Squat BB / DB	2 x 8 es
C2	Palloff Press + Alternate Single Leg Lift and Hold 3 sec	3 x 3 es in each direction
C2	Half Side Plank leg lifts	3 x 12
D1	Stir the Pot – Stability Ball	3 x 12
D2	Copenhagen Groin Exercise – Short Lever (through range)	3 x 30s

EXERCISE PROGRAM - EXAMPLE

This is an example of a progressive exercise program. It should be adapted for individual readiness and sport specific requirements.

Phase 3 DEVELOP

Focus: Linear Speed + Plyos

Period: Weeks 4-8

Exercise Frequency: 6 sessions per week (3 Restore/ 3 Develop)

LINEAR SPEED + PLYOS	EXERCISE	REPS/SETS
Warm Up	Skipping - 2 min interval – Cycle X 5 min	3
A1	A-Skip	2 x 10m
A2	Acceleration Wall Single Exchange	2 x 6 es
A3	Lateral Shuffle	2 x 10m es
B1	Single Leg Alternating Pogo Hops - Forward	2 x 15-20 es
B2	Resisted Band Accelerations	10 m x 4
B3	Sled X-over Pull (moderate pace)	10m each direction
C1	Deadlift or Squat - BB	3 x 8,8,6
C2	Weighted Lunge Transfer Goblet or Sandbag- F/B	3 x 4 es
D1	Rear Foot Elevated Split Squat – Barbell	2 x 6 es
D2	Plyometric Box Jump – 2 foot jump to 2 foot landing – progress to 1 foot land and stick	2 x 6 es
E1	Copenhagen Groin Exercise – Long Lever Holds	2 x 20s es
E2	Lateral Lunge - Weighted DB, Barbell Landmine or Trail Leg Plate Drag	2 x 10m

EXERCISE PROGRAM - EXAMPLE

This is an example of a progressive exercise program. It should be adapted for individual readiness and sport specific requirements.

Phase 4 PREPARE

Focus: Multidirectional Speed + Power

Period: Weeks 6-12

Exercise Frequency: 4 sessions per week (2 Develop/ 2 Prepare)

REACTIVE STRENGTH AND POWER	EXERCISE	REPS/SETS
Warm Up	Skipping - 2 min interval / Stair Runs – Single step speed/ skip 1 step/ skip 2 steps	3
A1	Plate OH March or Switches	2 x 6 es
A2	Lateral Shuffle - Reactive	2 x 4 es
A3	Lateral hop + Pivot hops	2 x 6 es
A4	Lunge Jump Switches	2 x 6 es
B1	Prowler bounding	2 x 10 m
B2	Prowler sprinting	2 x 10 m
C1	Sumo Squat - BB	3 x 6
C1	Vertical Med Ball Throw	3 x 5
C3	Single Leg Max Jump (to box or for distance)	4 x 3 es
D1	Lunge – elevated front foot – Bilateral DB + heel raise	2 x 8 es
D2	RDL to A Frame - Aqua Bag or MB	2 x 10m
D3	Rotational med ball throw or rotational pulley punch	3 x 5 es
E1	Stir the Pot – Stability ball	2 x 8
E2	Copenhagen Groin Exercise - Long Lever (elevated through range)	2 x 12 es
E3	Single Leg BB bridge	3 x 6